



# First record of *Elga leptostyla* Ris, 1911 (Odonata, Libellulidae) from Costa Rica

Jareth Román-Heracleo<sup>1</sup>, Monika Springer<sup>2</sup>

**1** Sistema de Estudios de Posgrado en Biología, Universidad de Costa Rica, San Pedro Montes de Oca, 11501-2060 San José, Costa Rica. **2** Museo de Zoología, Escuela de Biología & CIMAR, Universidad de Costa Rica, San Pedro Montes de Oca, 11501-2060 San José, Costa Rica.

**Corresponding author:** Jareth Román-Heracleo, [romanjareth@gmail.com](mailto:romanjareth@gmail.com)

## Abstract

During research in the Tirimbina Biological Reserve, on the Caribbean slope of Costa Rica, we captured adult specimens and reared larvae of the dragonfly *Elga leptostyla* Ris, 1911, which belongs to the Libellulidae. This species was previously reported only from southern Panama to northern South America. Therefore, this is the first record of the species and genus from Costa Rica, increasing the number of Libellulidae species recorded in the country to 95. This species' known distribution is northwards.

## Keywords

Anisoptera, Central America, distribution, dragonflies, Neotropics, range extension.

**Academic editor:** Cornelio Andrés Bota Sierra | Received 2 May 2020 | Accepted 7 July 2020 | Published 24 July 2020

**Citation:** Román-Heracleo J, Springer M (2020) First record of *Elga leptostyla* Ris, 1911 (Odonata, Libellulidae) from Costa Rica. Check List 16 (4): 911–914. <https://doi.org/10.15560/16.4.911>

## Introduction

For many groups of insects, Costa Rica is one of the best-studied countries on the Central American isthmus, and its Odonata fauna is among the best-known among aquatic insects (Springer et al. 2014). Nonetheless, new species are still being discovered in the country, and several have been described recently (Haber et al. 2015; Haber 2017, 2019), raising the number to over 281 species reported for this small country (Paulson 2020a). For the family Libellulidae, 27 genera and 94 species have been recorded so far (Haber et al. 2015; Paulson 2020a). This family inhabits a variety of freshwater habitats, including rivers, streams, ponds, lakes, and coastal lagoons, both in open areas as well as forested sites, and they are among the most abundant and widely distributed dragonflies (Esquivel 2006).

During surveys in 2019, the libellulid species *Elga leptostyla* Ris, 1911 was collected for the first time in Costa Rica, raising the number of species reported for this family to 95.

## Methods

This study was conducted in 2019 at the Tirimbina Biological Reserve (180–220 m a.s.l.), within the Holdridge life zone of humid forest premontane transition to basal and very humid tropical forest, located within La Virgen, Sarapiquí area, on the Caribbean slope of Costa Rica. Adults were collected using an insect net during active search over aquatic habitats and trails. Mature larvae were collected with a plastic strainer and transported

alive to the laboratory to rear them to the adult stage. Adults were identified using taxonomic keys and literature (Garrison et al. 2006).

Sampling permits were provided by the National System of Conservation Areas of the Ministry of Environment and Energy under resolution number SINAC-ACAHN-PI-R-028-2018. All specimens are deposited at the Zoological Museum of the University of Costa Rica (MZUCR).

## Results

### *Elga leptostyla* Ris, 1911

**New record.** COSTA RICA • 1 ♂ adult, 28 mm; Heredia, Sarapiquí, La Virgen, Tirimbina Biological Reserve; 10.4076°N, 084.1140°W; 187 m.a.s.l.; 15 Apr. 2019; J. Román-Heracleo, Y. Bravo-Méndez leg.; MZUCR-O-1156. • 1 larva; same data except 16 Feb. 2019; reared; MZUCR-O-1193. • 1 ♀ adult, 27 mm; Heredia, Sarapiquí, La Virgen, Tirimbina Biological Reserve; 10.4072°N, 084.1202°W; 175 m.a.s.l.; 17 Apr. 2019; J. Román-Heracleo, Y. Bravo-Méndez, leg.; MZUCR-O-1136.

**Identification.** *Elga leptostyla* adults are characterized by the following features: cream spots on the thorax, abdominal segment 2 with a cream vertical band, and a dorsal transverse band on the first third of segment 7. Body coloration is similar for both sexes, although wing coloration differs (Fig. 1A, B).

The only other species from this genus, *Elga newtonsantosi* Machado, 1992, recorded so far only from Brazil and therefore very unlikely to occur in Costa Rica, lacks the cream spots on the thorax. This species and *E. leptostyla* can be distinguished by additional characters which were listed in detail for both sexes in the original description (Machado 1954), although *E. leptostyla* was described therein as *E. santosi* sp. n., while the redescription of *E. leptostyla* by Machado (1954) actually corresponds to *E. newtonsantosi* (Machado 1992).

**Habitat.** Specimens were collected in slow-flowing water, within dense vegetation in a shaded, very humid tropical forest area (Fig. 2).

## Discussion

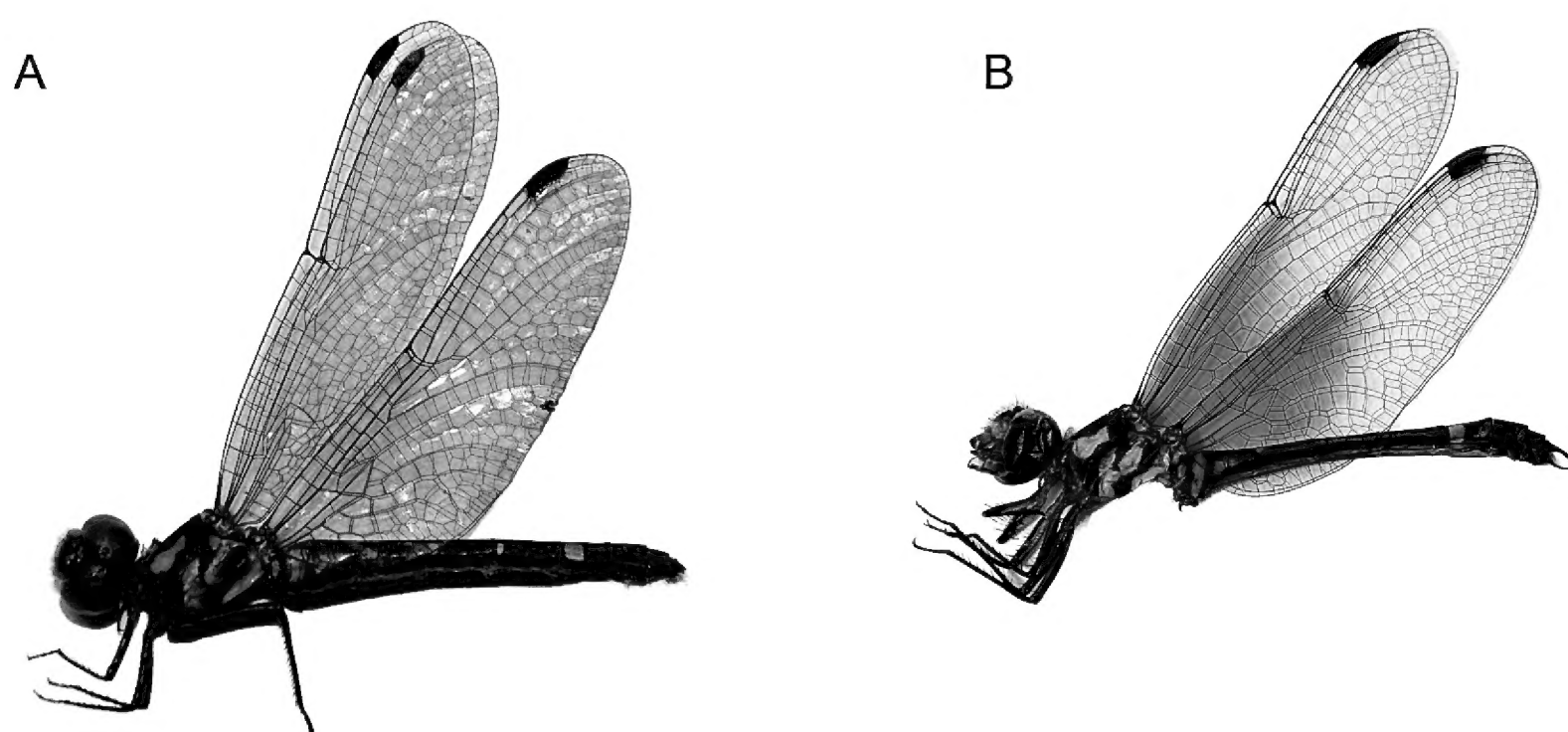
Ramírez (1997) mentioned *Elga leptostyla* in the list of Costa Rica species, but this species was removed from the updated list by Ramírez et al. (2000) without further explanation. Therefore, this is the first confirmed record of this species based on collected specimens for the country. This new record also represents a range extension northward for *E. leptostyla* (Fig. 3) because the northernmost previous record was on the Caribbean slope of Panama, in watersheds 105 and 115 (May 1979; Donnelly 1992; Delgado and Cornejo 2014). It is also known from South America, specifically from Colombia, Ecuador, Peru, Venezuela, Trinidad and Tobago, Suriname, and Brazil (Paulson 2020b).

## Acknowledgements

We are grateful to William Haber and Dennis Paulson for verifying the species identification, to Yanil Bravo-Méndez for her help during fieldwork and with the distribution map, and to J. Antonio Gómez-Anaya for help with photo editing. We also thank Paul Hanson for revising the English, and William A. Haber and Rodolfo Novelo for their valuable comments, which helped to improve this manuscript. The first author thanks the Asociación Costarricense de Acuarismo para la Conservación de los Ecosistemas Dulceacuícolas for the research grant, which made this project possible. Finally, we thank the anonymous reviewers for their valuable comments.

## Authors' Contributions

JRH collected and identified specimens. Both authors wrote the manuscript and reviewed the final version.



**Figure 1.** Adults of *Elga leptostyla*. **A.** Female, lateral view. **B.** Male, lateral view.



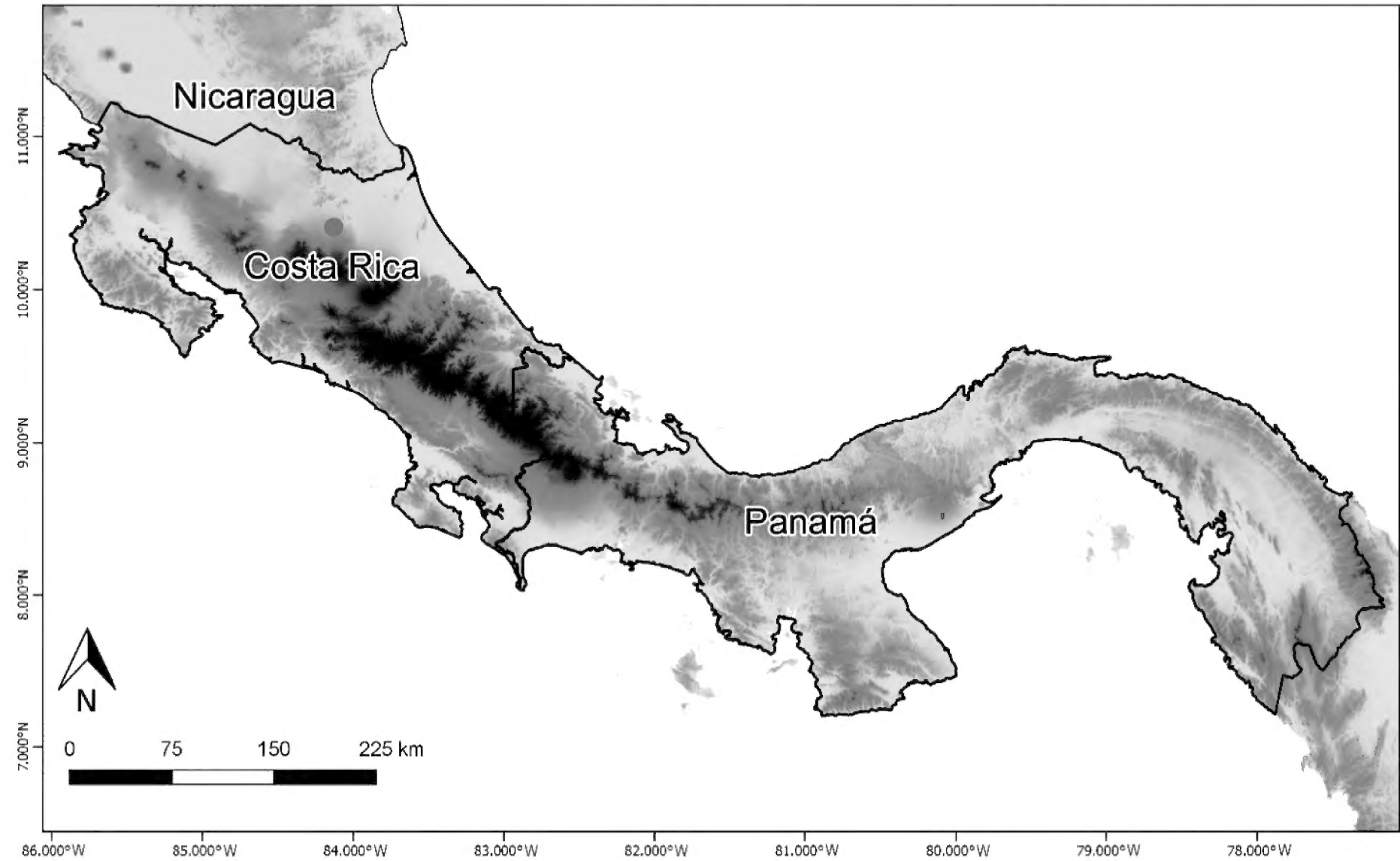
References

Delgado D, Cornejo A (2014). Diversidad de ninfas de Odonata en la parte baja del río San Juan, provincia de Colón, Panamá. *Scientia* 24 (2): 71–92.

Donnelly TW (1992) The Odonata of Central Panama and their position in the neotropical odonate fauna, with a checklist, and descriptions of new species. In: Quintero D, Aiello A (Eds) *Insects of Panama and Mesoamerica, Selected Studies*. Oxford University Press, Oxford, 52–90.



**Figure 2.** Habitat of *Elga leptostyla* in the Tirimbina Biological Reserve, Sarapiquí, Heredia, Costa Rica.



**Figure 3.** The map show the northernmost previous record on Panama and the new record in Costa Rica. The red point shows specific ubication of the sampling site in Costa Rica.

- Esquivel C (2006) Libélulas de Mesoamérica y el Caribe. Instituto Nacional de Biodiversidad, Heredia, 319 pp.
- Garrison RW, von Ellenrieder N, Louton JA (2006) Dragonfly genera of the New World: an illustrated and annotated key to the Anisoptera. The Johns Hopkins University Press, Baltimore, 368 pp.
- Haber WA (2017) Three new species of *Epigomphus* (Odonata: Gomphidae) from Costa Rica. *Zootaxa* 4282 (1): 73–94. <https://doi.org/10.11646/zootaxa.4282.1.4>
- Haber WA (2019) *Gynacantha vargasi* (Odonata: Anisoptera: Aeshnidae) sp. nov. from Costa Rica. *Zootaxa* 4612 (1): 58–70. <https://doi.org/10.11646/zootaxa.4612.1.3>
- Haber WA, Wagner DL, De la Rosa LC (2015) A new species of *Erythrodiplax* breeding in bromeliads in Costa Rica (Odonata: Libellulidae). *Zootaxa* 3947 (3): 386–396. <https://doi.org/10.11646/zootaxa.3947.3.5>
- Machado ABM (1954) “*Elga santosi*” sp. n. e redescricao de *Elga leptostyla* Ris, 1911 (Odonata, Libellulidae). *Revista Brasileira Biologia* 14 (3): 303–312.
- Machado ABM (1992) A taxonomic note on *Elga* Ris, with *E. newton-santosi* nom. nov. for *E. leptostyla* Machado, 1954 (Anisoptera—Libellulidae). *Notulae Odontologicae* 3 (9): 153–154.
- May ML (1979) Lista preliminar de nombre y clave para identificar los Odonata (caballitos) de la Isla de Barro Colorado (IBC). Editorial Universitaria, Smithsonian Institute, Panama, 52 pp.
- Paulson DR (2020a) Middle American Odonata. Slater Museum of Natural History, University of Puget Sound. <https://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/middle-american-odonata>. Accessed on: 2020-1-20.
- Paulson DR (2020b) South American Odonata. Slater Museum of Natural History, University of Puget Sound. <https://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/south-american-odonata>. Accessed on: 2020-1-20.
- Ramírez A (1997) Lista de especies costarricenses del orden Odonata (Insecta) de las que se conoce la náyade. *Revista de Biología Tropical* 45 (1): 225–232.
- Ramírez A, Paulson DR, Esquivel C (2000) Odonata of Costa Rica: diversity and checklist of species. *Revista de Biología Tropical* 48 (1): 245–252.
- Springer M, Echeverría S, Gutiérrez-Fonseca PE (2014) Costa Rica. In: Alonso-Eguía Lis P, Mora JM, Campbell B, Springer M (Eds) *Diversidad, conservación y uso de los macroinvertebrados dulceacuícolas de México, Centroamérica, Colombia, Cuba y Puerto Rico*. Instituto Mexicano de Tecnología del Agua, Jiutepec, 119–155.